

### **REMARKS**

This responds to the Office Action dated September 21, 2007. Claims 1, 9, 17, 21, 25, and 31 include a proposed amendment to clarify the recited subject matter. Applicant believes the proposed amendment places the claims in condition for allowance and respectfully requests entry of the amendments under 37 C.F.R. § 1.116. Claims 1-34 are pending in this application.

#### **§102 Rejection of the Claims**

Claims 1, 3-4, 6, 8-9, 11-12, 14, 16-17, 20-21, 24-25, 27, 29, 31, and 34 were rejected under 35 USC § 102(e) as being anticipated by Kadous et al. (U.S. 2003/0095508 A1, “Kadous”). Applicant respectfully traverses the rejection, as applied to the claims when amended as proposed, because Kadous does not teach some of the elements recited in the claims.

Applicant cannot find in Kadous any disclosure of, among other things, generating a channel state information packet to be transmitted back to the transmitter, wherein the packet selectively includes, according to the connection time, the quantized channel response function or the quantized residual value of the channel response function,

as presently recited in claim 1 and similarly recited in claims 9 and 25, or

parsing a channel state information packet received from a device after transmitting a signal to the device to obtain a quantized channel response function of the signal wherein the channel state information packet selectively includes, depending on a connection time with the device, the quantized channel response function or a quantized residual value of the channel response function,

as presently recited in claim 17 and similarly recited in claims 21 and 31.

Instead, Kadous states that the feedback information may include the rate, the channel estimates provided by the channel estimator 164, and acknowledgement (ACK) or negative acknowledge (NACK).<sup>1</sup> Kadous also states that channel estimator 164 processes the recovered OFDM symbols to provide estimates of one or more characteristics of the communication

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<sup>1</sup> Kadous, ¶0027.

channel, such as the channel frequency response, the channel noise variance, the signal-to-noise-and-interference ratio (SNR) of the received symbols, and so on.<sup>2</sup> Therefore, Kadous does not disclose “a channel state information packet [that] selectively includes, according to the connection time, the quantized channel response function or the quantized residual value of the channel response function” as recited in claim 1.

The Office Action reads the feedback information to be sent back to the transmitter 110 from Kadous Pars. 0021-0027 onto the claim elements.<sup>3</sup> However, the portions of Kadous cited in the Office Action do not disclose “a residual value of the channel response function, wherein a channel estimate is subtracted from the channel response function to provide the residual value” as recited in claim 1. Nor does the Office Action indicate where the quantized residual value, recited in claim 1, is disclosed in Kadous.

Applicant respectfully requests withdrawal of the rejection and reconsideration and allowance of claims 1, 3, 4, 8, 9, 11, 12, 16, 17, 20, 21, 24, 25, 27, 31, and 34.

### §103 Rejection of the Claims

1. Claims 2, 5, 10, 13, 18, 22, 26, 28, and 32 were rejected under 35 USC § 103(a) as being unpatentable over Kadous in view of Davidson et al. (U.S. 2002/0101840 A1, “Davidsson”). Applicant respectfully traverses the rejection. The Office Action fails to establish a proper *prima facie* case of obviousness because the proposed combination of Kadous and Davidsson does not teach or suggest some of the elements presently incorporated in the claims.

Claims 2 and 5 depend on base claim 1, claims 10 and 13 depend on base claim 9, claim 18 depends on base claim 17, claim 22 depends on base claim 21, claims 26 and 28 depend on base claim 25, and claim 32 depends on base claim 31. As set forth above, Kadous does not teach or suggest some of the elements of the base claims. Davidsson fails to teach or suggest those claim elements missing from Kadous.

Also, the M.P.E.P. states that Graham v. John Deere Co. should be followed in the consideration and determination of obviousness under 35 U.S.C. § 103. The factual inquiries enunciated in Graham include ascertaining the differences between the prior art and the claims at

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<sup>2</sup> Kadous, ¶0025.

<sup>3</sup> Office Action, pg. 3.

issue. The content of the prior art is determined at the time the invention was made to avoid hindsight.<sup>4</sup> One of ordinary skill in the art at the time of the invention would not have reasonably looked to combine Davidsson with Kadous.

The Office Action states that it would have been obvious ... to combine the teaching of Davidsson with the system of Kadous for the benefit of achieving a wireless packet system that includes a timing drift compensation technique.<sup>5</sup> However, Davidsson refers to a radio receiver that includes a timing correction unit that performs timing drift compensation. Kadous refers to feedback information sent back to the transmitter to adjust processing.<sup>6</sup> Thus, one of ordinary skill in the art at the time of the invention would not have reasonably looked to Davidsson to solve a problem in Kadous because Davidsson solves the problem of timing drift compensation in the receiver, leaving no reason to send feedback information to adjust processing as in Kadous.

Applicant respectfully requests reconsideration and allowance of claims 2, 5, 10, 13, 18, 22, 26, 28, and 32.

2. Claims 7, 15, 19, 23, 30, and 33 were rejected under 35 USC § 103(a) as being unpatentable over Kadous in view of He et al. (U.S. 2004/0005010 A1, “He”). Applicant respectfully traverses the rejection. The Office Action fails to establish a proper *prima facie* case of obviousness because the proposed combination of Kadous and He does not teach or suggest some of the elements presently incorporated in the claims.

Claims 6 and 7 depend on base claim 1, claims 14 and 15 depend on base claim 9, claim 19 depends on base claim 17, claim 23 depends on base claim 21, claims 29 and 30 depend on base claim 25, and claim 33 depends on base claim 31. As set forth above, Kadous does not teach or suggest all of the elements of the base claims. He fails to teach or suggest the missing elements.

For example, Applicant cannot find in He any teaching or suggestion of among other things,

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<sup>4</sup> M.P.E.P. § 2141 I.

<sup>5</sup> Office Action, pg. 6.

<sup>6</sup> Kadous, ¶0027.

generating a channel state information packet to be transmitted back to the transmitter, wherein the packet selectively includes, according to the connection time, the quantized channel response function or the quantized residual value of the channel response function,

as presently recited in claim 1.

The Office Action states that He includes subtracting a channel estimate from the channel response function to provide a residual value of the channel response function.<sup>7</sup> Applicant respectfully disagrees with this characterization of He. Instead, He refers to subtracting a current estimate of the determined measure of intercarrier interference (ICI) from an output of a Fourier-based transform step performed in a receiver of the multicarrier modulation system, to produce an adjusted output of the Fourier-based transform step.<sup>8</sup> Thus, He subtracts ICI from an estimate of the channel response to obtain a current channel response<sup>9</sup> instead of “wherein a channel estimate is subtracted from the channel response function to provide the residual value.”

Also, the differences in the references would have made it unlikely that one of ordinary skill at the time of the invention would look to combine He with Kadous. The Office Action states that it would have been obvious ... to combine the teaching of He with the system of Kadous for the benefit of achieving a system that includes equalization for accurately determining the frequency offset between the transmitter and receiver.<sup>10</sup>

However, He states that “Data equalization is performed using the channel response iteratively calculated as described. The implied ICI is constructed, and the output from the FFT in the OFDM receiver is adjusted to determine an estimate of transmitted OFDM data.” Kadous refers to feedback information sent back to the transmitter to adjust the processing.<sup>11</sup> Thus, one of ordinary skill in the art at the time of the invention would not have reasonably looked to He to solve a problem in Kadous because He solves the problem of equalization in the receiver while Kadous describes adjustment in the transmitter.

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<sup>7</sup> Office Action, pg. 9.

<sup>8</sup> He, ¶0035.

<sup>9</sup> He, ¶0036.

<sup>10</sup> Office Action, pg. 9.

<sup>11</sup> Kadous, ¶0027.

Applicant respectfully requests reconsideration and allowance of claims 6, 7, 14, 15, 19, 23, 29, 30, and 33.

### CONCLUSION

Applicant respectfully submits that the claims are in condition for allowance and notification to that effect is earnestly requested. The Examiner is invited to telephone Applicant's attorney at 612-371-2172 to facilitate prosecution of this application.

If necessary, please charge any additional fees or credit overpayment to Deposit Account No. 19-0743.

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CERTIFICATE UNDER 37 CFR 1.8: The undersigned hereby certifies that this correspondence is being filed using the USPTO's electronic filing system EFS-Web, and is addressed to: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on this 21st day of November 2007.

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